

One Page Summary of Warren I. Mitchell's Testimony,
Chairman of Clean Energy

Tuesday May 8, 2007

The Renewable Fuels Standard should be expanded to include other alternative fuels, like natural gas, as biofuels alone will not meet 2017 or 2022 production goals currently being considered by Congress. These production goals are critical for our nation to achieve, regardless of what fuel is used, to stem stubbornly rising petroleum dependence.

Natural gas vehicles offer a proven solution in light-, medium-, and heavy-duty vehicles that are ready for wide-scale implementation today. Our natural gas resources can play a critical role in diversifying our nation's transportation fuel needs, providing a clean, inexpensive, and a potential renewable fuel source that is domestically abundant and helps reduce greenhouse gases. In leveraging natural gas as a transportation fuel, we not only take advantage of existing pipeline infrastructure but also foster the production of cleaner vehicles, like hydrogen, for our children's future.

Clearly, Congress must enact more national policies like the 2005 Energy and Highway bills to help natural gas and other alternative fuels penetrate the marketplace. One thing to do right now would be to extend the tax credits and other benefits to 2017 and require certain fleets (i.e., transit, refuse, port, and taxi cabs) to use alternative fuels. Without the firm support of the Congress behind all petroleum alternatives, our nation's ability to free itself from its current oil dependence will be at greater risk. Clean Energy urges the expansion of the current Renewable Fuels Standard toward a broader Alternative Fuels Standard that includes clean, domestic and affordable natural gas as a transportation fuel.

Testimony of Warren I. Mitchell,
Chairman,
Clean Energy

Before the

United States House of Representatives,
Subcommittee on Energy and Air Quality

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Introduction

Good morning Chairman Boucher and Honorable Members of the Subcommittee on Energy and Air Quality. My name is Warren Mitchell and I currently serve as the Chairman of Clean Energy - North America's leading clean transportation fuel provider. Before I joined Clean Energy's board, I served as Chairman and President of the Southern California Gas Company. I want to thank you for having me before you today to share my thoughts on this very timely national issue.

Clearly, the country is facing an impending transportation fuel crisis, and it is appropriately challenging itself to fill a 35 billion gallon per year renewable fuel goal by 2017. The country is also coming to the realization that there is no one "silver bullet" that can solve our country's over dependence upon oil. More to the point, many alternatives that the nation has focused on to date can carry a premium, face significant

air quality challenges with uncertain climate change benefits, require significant subsidies or have yet to even be produced at any substantive scale. This is why it is imperative that Congress widen its focus on renewable fuels to include other alternatives that can help promote greater energy independence, advance clean air and climate change goals, and bridge this country toward both a renewable and zero emission future.

Although it is often overlooked, downplayed or misunderstood, there is a fuel that is largely domestic, low in carbon, historically exceeds vehicle emissions standards, and can be produced from a renewable feedstock. The fuel that I speak of also is price-competitive with petroleum, enjoys an existing national infrastructure that can fuel vehicles at stations or in the convenience of your own home, provides a bridge to a hydrogen future, and currently fuels cars, school and transit buses, refuse and port trucks by the thousands; displacing hundreds of millions of gallons of petroleum today. What is this miracle fuel you ask? It's natural gas, and yes, it's the same fuel that powers the range that you cook with, your water heater, and possibly generates electricity for your local utility.

Today, Clean Energy fuels over fourteen thousand vehicles daily with clean, affordable, and domestically produced natural gas. Our company, with an annual growth rate of 28 percent over the past three years, operates over 170 fueling stations nationwide, and is on track to sell approximately 82 million gallons of natural gas in 2007. Unlike some fuels, natural gas can provide our nation with an immediate solution to foreign oil dependency, mounting urban air pollution challenges, and global climate change, while providing a

direct bridge to a hydrogen future. Natural gas is in many ways an ideal transportation fuel solution and will remain so well into the future.

Global Oil Supply

Clean Energy is no longer alone in the camp that believes that high oil prices are here to stay. The world recognizes that it is looking straight into a looming supply-demand problem. Oil is a finite and dwindling resource and the world's demand for it keeps on growing. There is no question that the world will continue to face stubbornly climbing oil prices for the long term.

Let's take a look at the facts. In the Arab embargo back in the 70s, we were importing approximately 25 percent of our oil. In the first Gulf War, we were importing 42 percent of our oil. Today we are importing 64 percent and we can only expect to be worse off if we fail to diversify our transportation fuels in the near term. We've been pumping oil out of the ground since 1859. The last time a world class oil field was found was in the Caspian Sea in the late 1990s. The easy oil has been found. There are no surprises out there. We've either peaked as far as oil production goes, or it's right around the corner.

Demand is growing globally. China used 3.4 million barrels of oil per day a decade ago. Today they are currently over 6.7 million barrels per day. There are forecasts showing them using 11 million barrels per day a decade from now. Wait until they really start buying automobiles. We are using more than 30 billion barrels of oil a year worldwide. The last time we found as much oil in a year as we consumed was 1985. Production

worldwide remains steady at 84-85 million barrels a day. Current demand is about 85 million barrels a day and demand projections for 2008 are easily north of that given China and India's increasing demand.

The treadmill is getting faster and faster. The decline curve for oil production is steady. Saudis say they can produce 10.8 million barrels per day, but they're only producing 8.6 million barrels per day. We all heard talk three years ago of Iraq production reaching 3 million barrels per day. They are producing roughly 2 million barrels. To make matters worse, we've also got some serious geopolitical problems: Iran, Venezuela, Nigeria, and Russia. They are all wild cards.

Alternatives to Oil

We, as a nation, must look at all solutions and we need to get serious about fuel diversity now. We all have known that an oil shortage was coming. Even assuming optimistic new production sources coming on line, balanced with estimated production decline curves, the demand-production gap could be as high as 30 million barrels per day in 2020. Clean Energy agrees with many energy experts that there is no one "silver bullet" alternative that can solve our petroleum dependence. All renewable and alternative fuels must be encouraged because farm fuels, i.e., ethanol and biodiesel, cannot by themselves achieve the petroleum displacement goals that Congress and the President are considering today. Assuming that ethanol and biodiesel achieve their greatest forecasted production targets, they would fall 18 billion gallons short of a 35 billion gallon a year displacement goal for 2017. Even with a five year extension to 2022, it is unlikely that these fuels

alone will reach Congressional targets. Therefore, we urge the Committee to expand the “Renewable” Fuel Standard to an “Alternative” Fuel Standard, and allow natural gas to play a significant role in displacing petroleum in the transportation market.

Natural Gas is Domestic, Abundant and Renewable

Natural gas is a domestic source of transportation fuel with an estimated 77 years of additional supply or 30 years extra supply over oil. Over 98 percent of our current use of natural gas is produced in North America, which helps protect us from unstable geopolitical situations and helps our energy independence by not importing as much foreign oil. Over time, we believe natural gas will be moved out of the power generation business by coal, nuclear, and other renewables, further increasing the availability of domestic natural gas supplies for our country’s transportation needs. Regardless, natural gas use in the transportation sector would have a negligible impact on supply. To put this into perspective, if we powered 11,000,000 light-duty vehicles or 5 percent of the U.S. light-duty fleet with natural gas today, it would only account for 4 percent of the country’s current natural gas fuel usage. Further, with the advancements in pyrolysis to convert coal and biomass to methane, an already abundant national supply of natural gas could be augmented by a source capable of providing extraordinary climate change benefits.

Natural Gas is Clean

Natural gas burns clean and efficiently. Natural gas vehicles meet near-zero emission levels for passenger car applications and already meet or exceed 2007 heavy-duty

emission standards with some truck engines targeted to certify to the 2010 standard as early as this year. Not only is natural gas inherently cleaner than gasoline or diesel, it also provides a readily available low carbon alternative that can be implemented today. In fact, a recent California Energy Commission “well to wheels” analysis found that natural gas provides roughly a 27% reduction in greenhouse gases for light-duty vehicles and up to a 21% reduction for medium- to heavy-duty vehicles when compared to their petroleum counterparts.

Natural Gas is Economic

Natural gas is economic. The price for natural gas as a transportation fuel is very competitive with today’s gasoline or diesel fuels. In fact, natural gas was very competitive with oil at \$30 a barrel, let alone at the market’s current price of \$64 a barrel. Clean Energy views natural gas as a commodity tracking at a discount to oil, especially when compared to diesel. For example, if you assume a natural gas price at \$7.61 per thousand cubic feet and \$1.01 to cover transport, compression, taxes, and capital recovery costs, you can achieve a very competitive \$1.96 gasoline gallon equivalent or a \$2.17 diesel gallon equivalent. As of Thursday, national gasoline averages ranged from \$2.99 to \$3.29 per gallon and diesel averaged at \$2.92 per gallon.

Historically, the overall market has suffered over a dozen global oil supply disruptions over the past half century lasting 1 to 44 months in duration with supply shortfalls of one to 14 percent of world demand, adding to the volatility of oil prices. Despite the reality of volatile oil prices and unlike any energy provider we know, our company is able to

guarantee a fixed price per gallon of natural gas to our fleet customers below today's gasoline and diesel prices for up to five years on a energy equivalent gallon basis.

In addition to the comparatively low cost of natural gas as a transportation fuel, Congress took an important step in passing the energy and highway bills two years ago. As the cost of uncertain diesel technology increases in an effort to meet new federal clean air emission standards, the 2005 energy bill provides up to a \$32,000 tax credit for medium and heavy-duty trucks that can serve our refuse, transit, and goods movement industry sectors. This tax credit is helping to narrow the incremental cost differential between diesel and natural gas vehicles. When fuel price and operational maintenance savings are factored in, natural gas vehicles become even more cost-effective than their diesel counterparts. Because some of the incentives put in place are going to take awhile to have a real impact, we need Congress to continue to provide long-range policies that promote alternative fuels in the marketplace through 2017.

Natural Gas Infrastructure

Perhaps the greatest challenge for any alternative to oil is the ability to distribute product to the end user. Natural gas, unlike other alternative fuels, enjoys the advantage of possessing a vast nationwide network of existing gas pipelines capable of delivering natural gas product to nearly every American community. Clean Energy has developed a strategic business model enabling the cost-effective development of a natural gas station network. This revolutionary approach creates a secondary station infrastructure to gasoline and diesel by leveraging private and public-private partnerships to create an

extensive network. These turn-key partnerships enable high-volume fleet users to benefit from privately financed refueling stations while providing smaller volume users with public access at these stations. Further, consumers can immediately take advantage of natural gas as a transportation fuel with the simple installation of a low cost home refueling system that is currently on the market. Moreover, natural gas stations can provide an early introduction of hydrogen by using a 10 to 30 percent blend, reducing the immediate need for high-cost fuel cells to achieve near-zero air emissions.

Natural Gas Vehicle Availability

Natural gas vehicles are currently available, proven, and tested in transit, refuse, shuttle, taxi, police, airport and municipal fleet applications throughout the United States. These applications were primarily driven by the clean air benefits inherently derived from the use of natural gas. However, for years, American and foreign auto manufacturers have produced an ever increasing selection of natural gas vehicle products in Europe, Asia and Central and South America, – both dedicated and bi fuel – for natural gas vehicles to address concerns over high oil prices. These OEM-produced vehicles are fully integrated providing consumers the mileage range and conveniences of gasoline vehicles. Congress should join other world leaders by strongly encouraging auto manufacturers through incentives or mandates to produce a greater range of natural gas vehicles for the American consumer.

Natural Gas Markets

Like all alternative fuels, natural gas as a transportation fuel satisfies several key niche markets that can provide significant petroleum displacement. As of December 31, 2006, Clean Energy had over 200 fleet customers operating over 14,000 vehicles, including 3,000 transit buses, 1,200 taxis, 800 shuttles and 790 refuse trucks. With the expansion of America's goods movement system, the San Pedro Bay Ports have already signaled an interest in purchasing over 5,300 liquefied natural gas class 8 trucks within the next five years, displacing approximately 80 million gallons annually of petroleum alone. If Congress were to require transit, refuse and taxi fleets to adopt alternative fuels into their portfolios, the benefits could be as great as 4.3 billion gallons displaced annually.

Natural Gas Bridge to Hydrogen

Natural gas is also viewed as a bridge fuel to hydrogen as it continues to be the most cost-effective way to produce hydrogen and provides invaluable experience and knowledge to users on how to handle gaseous fuels. In addition, natural gas infrastructure can be leveraged to provide hydrogen as well as blended hydrogen/natural gas dispersing. In fact, the blending of hydrogen and natural gas, similar to our station in Vancouver, Canada, provides even lower near zero emission performance at the tailpipe. If the US possessed fully integrated OEM produced natural gas vehicles, these vehicles can operate on natural gas, hydrogen, and blended hydrogen/natural gas fuels.

Policy Recommendations

Achieving the production goals of 35 billion gallons annually by 2017 and 50 billion gallons per year by 2030 requires the addition of fuels beyond the renewable portfolio

and the inclusion of alternative fuels to this portfolio is critical for the country's security and economic and environmental health. Clean Energy urges Congress to transform the Renewable Fuel Standard enacted under the Energy Policy Act of 2005 into an Alternative Fuel Standard to help avoid a potential 18 billion gallon production shortfall in 2017. Furthermore, and whenever possible, Congress should assure the public that all fuels within this portfolio do no harm to air quality or cause air quality backsliding prior to their implementation. Congress should also recognize and provide more research, development and deployment dollars toward biogas projects as pyrolysis and other advancements can certainly further our country's renewable and climate change goals. Congress should extend the tax credits for alternative fuels and vehicles established under the Energy Policy Act through 2017 in an effort to provide added certainty to fleet owners who lead in early alternative fuel adoption. Further, we believe federal action requiring key public and private fleets to adopt and implement alternative fuel strategies will help foster the alternative fuel penetration required to achieve the nation's alternative fuel goals for 2017 and beyond.

Conclusions

Natural gas vehicles offer a proven solution in light-, medium-, and heavy-duty vehicles that are ready for wide-scale implementation today. Our resources of natural gas can play a critical role in diversifying our nation's transportation fuel needs. Natural gas is a clean, inexpensive, and a potential renewable fuel that is domestically abundant and helps reduce greenhouse gases. In leveraging natural gas as a transportation fuel we not only take advantage of existing pipeline infrastructure but also foster the production of cleaner

vehicles for our children's future. The societal experience of operating a natural gas vehicle is likely the only realistic approach to achieving a hydrogen economy. Clearly, Congress must enact more national policies like the 2005 Energy and Highway bills to help natural gas and other alternative fuels penetrate the marketplace and be made available to the public. One thing to do right now would be to extend the tax credits and other benefits to 2017 and require certain niche markets (i.e., transit, refuse, port, and taxi cabs) to use alternative fuels. Without the firm support of the Congress behind all petroleum alternatives, our nation's ability to free itself from its current oil dependence will most certainly put our nation's economy, security, and overall public health at risk. Clean Energy urges the expansion of the current Renewable Fuels Standard toward a broader Alternative Fuels Standard that includes clean, domestic and affordable natural gas as a transportation fuel.